

**WHAT IS CLAIMED IS:**

1. A personal bill denomination reader comprising:  
a memory which stores at least eight built-in images per bill denomination for a plurality of bill denominations, the at least eight built-in images comprising a corresponding image for each of four corners for each of two sides of the bill denomination;  
a camera to capture an image of a bill;  
a pattern recognizer to match the image of the bill to one of the built-in images in the memory; and  
at least one output device to report the denomination of the bill based on the match from the pattern recognizer.
2. The personal bill denomination reader of claim 1 wherein the pattern recognizer is to use a rotation-invariant pattern matching algorithm to match the image of the bill to one of the built-in images.
3. The personal bill denomination reader of claim 1 further comprising an output selector to determine a mode to report the denomination of the bill.
4. The personal bill denomination reader of claim 3 wherein the output selector has a tactile output mode, an audible tone mode, and a speech mode.
5. The personal bill denomination reader of claim 1 wherein the at least one output device comprises a tactile output device to vibrate in a pattern unique to the denomination of the bill.
6. The personal bill denomination reader of claim 1 wherein the at least one output device comprises a dynamic Braille display to generate a Braille representation of the denomination of the bill.

7. The personal bill denomination reader of claim 1 wherein the at least one output device comprises a pressure display having a component that rises and lowers in a pattern unique to the denomination of the bill.

8. The personal bill denomination reader of claim 1 further comprising a key fob to house the memory, the camera, the pattern recognizer, and the at least one output device.

9. A personal bill denomination reader comprising:  
a memory which stores built-in images for a plurality of bill denominations;  
a camera to capture an image of a bill;  
a pattern recognizer to match the image of the bill to one of the built-in images in the memory; and  
a tactile output device to generate a tactile output unique to the denomination of the bill based on the match from the pattern recognizer.

10. The personal bill denomination reader of claim 9 wherein the tactile output device is to vibrate in a pattern unique to the denomination of the bill.

11. The personal bill denomination reader of claim 9 wherein the tactile output device comprises a dynamic Braille display to generate a Braille representation of the denomination of the bill.

12. The personal bill denomination reader of claim 9 wherein the tactile output device comprises a pressure display having a component that rises and lowers in a pattern unique to the denomination of the bill.

13. The personal bill denomination reader of claim 9 wherein the pattern recognizer is to use a rotation-invariant pattern matching algorithm to match the image of the bill to one of the built-in images.

14. The personal bill denomination reader of claim 9 wherein the memory stores at least eight built-in images per bill denomination for the plurality of bill denominations, the at least eight built-in images comprising a corresponding image for each of four corners for each of two sides of the bill denomination.

15. The personal bill denomination reader of claim 9 further comprising a key fob to house the memory, the camera, the pattern recognizer, and the tactile output device.

16. A mobile telephone comprising:

a memory which stores built-in images for a plurality of bill denominations;

a camera to capture an image of a bill, and to capture images in a picture messaging application;

a pattern recognizer to match the image of the bill to one of the built-in images in the memory; and

a tactile output device to vibrate in a pattern unique to the denomination of the bill based on the match from the pattern recognizer, the tactile output device further to vibrate to alert of an incoming telephone call.

17. The mobile telephone of claim 16 wherein the memory stores at least eight built-in images per bill denomination for the plurality of bill denominations, the at least eight built-in images comprising a corresponding image for each of four corners for each of two sides of the bill denomination.

18. The mobile telephone of claim 16 wherein the pattern recognizer is to use a rotation-invariant pattern matching algorithm to match the image of the bill to one of the built-in images.

19. The mobile telephone of claim 16 further comprising an output selector to determine a mode to report the denomination of the bill.

20. The mobile telephone of claim 19 wherein the output selector has a tactile output mode, an audible tone mode, and a speech mode.

21. The mobile telephone of claim 20 further comprising an audible ringer to alert of an incoming telephone call, the audible ringer to generate one or more distinctive, non-speech tones unique to the denomination of the bill based on the match from the pattern recognizer if the output selector is in the audible tone mode.